

NOTES AND ABSTRACTS

THE CLIMATE OF COIMBRA¹

By Prof. ANSELMO FERRAZ DE CARVALHO

Professor Carvalho has summarized the meteorological observations made at the Observatory of Coimbra during the 55 years 1866-1920 and presents his results in two parts. The first treats of the elements of climate of Coimbra as defined by the entire observational period; the second treats of the temperature of the air in very great detail, and the statistics (the tables of data) give the daily means, the daily maxima and minima for the 50-year period, 1867-1916. Daily means in groups of 5 days each are also presented.

Coimbra, N. latitude 40° 12', W. longitude 8° 25', altitude 141 meters, occupies a central position in the western margin of the Iberian Peninsula, and its climate therefore represents a form intermediate between that of the northern and the southern portions of this peninsula. The latter is very much under the influence of the semi-permanent area of high pressure centered over the Azores, and we should therefore expect rather strong climatic variations, notwithstanding its marine exposure on the west.

The series of temperature observations is quite homogeneous throughout the entire period and the means have been calculated from the 24-hour readings.

The averages of the annual means in groups of 20, 30, 40, 50, and 55 years are as follows:

| | °C |
|----------------|--------|
| 1866-1885..... | 14. 82 |
| 1866-1895..... | 14. 70 |
| 1866-1905..... | 14. 72 |
| 1866-1915..... | 14. 68 |
| 1866-1920..... | 14. 66 |

Thus showing first a slight rise and then in the last half of the record slowly diminishing temperature. The annual mean may be taken as 14.7° C.; the lowest yearly mean was in 1889 with 13.56° and the second lowest annual mean was 13.74° in 1917; the highest annual means were in 1881 and 1899 with 15.85° and 16.20°, respectively; hence the coldest years were but about 1° C. below the mean and the warmest years 1.5° above the annual mean, or an amplitude of 2.5° C. (4.5° F.).

Discussing sun spots and air temperatures, Professor Carvalho observes that the generally recognized relation of sun spots to terrestrial temperature—maximum spottedness of the sun corresponding to low temperature and the opposite—is not confirmed by the Coimbra observations. He states (p. 42):

With exception of the maximum of 1883.9, 1894.1, and 1917.8 which correspond to minimum temperatures, the variations in the number of spots are better represented by a curve parallel to and not opposite to that of the variations of temperature * * *.

The record of precipitation shows two groups of maximum rains and one of minimum, which, considering Coimbra's maritime exposure, is in opposition to Brückner's rules. The years of heavy precipitation were 1879-1881 and 1914-1916; the years of deficient rains were 1896-1898. The last-named series of dry years was preceded by the year of greatest precipitation in the entire series. Here again the tendency of one extreme being immediately followed by another in the opposite direction is manifest.

Students of weather periodicities will find valuable material in Professor Carvalho's work.—A. J. H.

¹The Climate of Coimbra, Anselmo Ferraz de Carvalho, Lisbon, 1922.

THE RANGE OF ATMOSPHERICS

[Reprinted from Nature, May 7, 1927]

The distances over which an atmospheric may produce disturbance of broadcast reception was discussed. The committee organized experiments in which observers in the British Isles, Norway, Germany, France, Spain, Morocco, and Madeira recorded disturbance of broadcast talks, while the sources of the atmospherics were identified by radio position finding by the organization set up in the Department of Scientific and Industrial Research on the advice of its Radio Research Board. Many of the sources were found to lie in regions of meteorological disturbance. Atmospherics from beyond the Azores have disturbed the reception of Daventry's signals in Paris and of London's signals in Aberdeen, and a thunderstorm at Rome disturbed reception in Spain, France, Madeira, the British Isles, and Norway. Many atmospherics are heard at distances exceeding 1,800 miles from their sources, and may reach at least 4,500 miles. There is no evidence of the presence of many atmospherics with a short range of disturbing effect.—R. A. Watson Watt, at meeting Royal Meteorological Society March 20, 1927.

PRELIMINARY OBSERVATIONS ON SOLAR ACTIVITY AND RADIO RECEPTION

[Laboratory for Special Radio Transmission Research, conducted jointly by the Bureau of Standards and the American Section of the International Union of Scientific Radio Telegraphy]

Recently a study of our observational data has been begun in regard to a possible relationship between radio

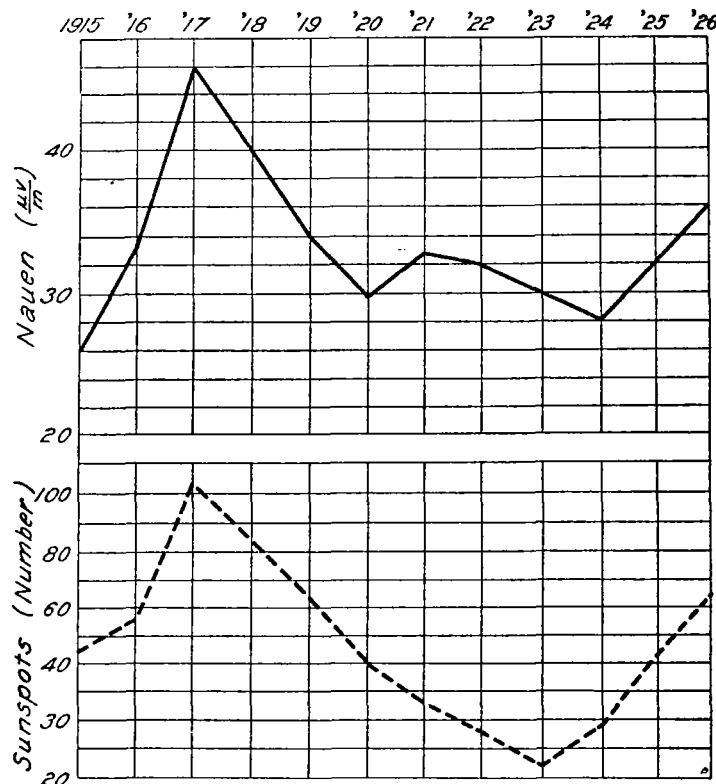


FIG. 1.—Annual average signal intensity of Nauen (AGS) and sun-spot numbers

signal strength and solar activity. For this purpose we have rough shunted telephone observations on Nauen as